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SPECIFICATION FOR EDIBLE SPRAY DRIED POTATO FLOUR

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SPECIFICATION FOR EDIBLE SPRAY DRIED POTATO FLOUR

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(*Continued on page* 2)

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(*Continued from page* 1)

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Indian Standard

SPECIFICATION FOR EDIBLE SPRAY DRIED POTATO FLOUR

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 27 April 1979, after the draft finalized by the Edible Starches and Starch Products Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Potato flour is used by bakery industry in the production of bread, *ROTI*, etc. The flour is now commercially produced in the country. It is felt that an Indian Standard for this product would help in production of spray dried potato flour of proper quality suitable for human consumption and also facilitate the consumer in getting right quality product. An outline of the method for the production of edible spray dried potato flour is given in Appendix A for guidance only.

0.3 In the preparation of this standard, due consideration has been given to the provision of the Prevention of Food Adulteration Act, 1954 and the Rules framed thereunder. However, this standard is subject to restrictions imposed under the Act, wherever applicable.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for edible spray dried potato flour.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 4287-1976† shall apply.

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*Rules for rounding off numerical values (*revised*).

†Glossary of terms relating to starch (*first revision*).

3. REQUIREMENT

3.1 Description — The material shall be made from clean, sound and healthy potatoes (*Solanum tuberosum*). It shall be in the form of a fine powder, white to creamish white in colour. It shall be free from rancidity, adulterants, insect or fungus infestation and from fermented, musty or other objectionable odour. It shall be free from foreign matter.

3.2 Microscopic Appearance — When the material is subjected to microscopic examination as prescribed in 4 of IS : 4706 (Part 1)-1978*, the starch granules shall have the characteristic appearance similar to the photomicrograph shown in Fig. 1. The granules shall conform to the following description:

> 'The granules of potato starch vary greatly in size and shape, the largest are often egg-shaped and are visible to the naked eye. The majority are flattered ellipsoids and the smallest may be perfectly spherical. The granules generally occur singly, although compound granules consisting of two or three units may be seen on rare occasion. Granules size ranges from 15 nm to 100 nm, but average size ranges from 12·5 nm to 35·5 nm. The eccentric hilum towards the narrow end of the grain is normally well marked and surrounded by numerous concentric rings; these being very distinct on some grains.

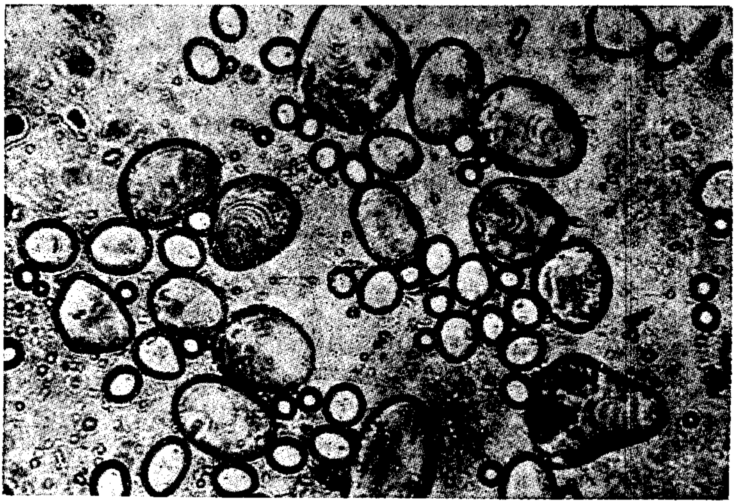

FIG. 1 MICRO PHOTOGRAPH

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*Methods of test for edible starches and starch products: Part I Physical methods.

3.3 Particle Size — Unless otherwise specified, the material shall pass through 180-micron IS Sieve (*see* IS : 460-1962*).

3.4 Hygienic Conditions — The material shall be processed and packed under hygienic conditions (*see* IS : 2491-1972†).

3.5 The material shall also comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR EDIBLE SPRAY DRIED POTATO FLOUR

Sl No.	Characteristic	Requirement	Method of Test, Ref to Clause	
(1)	(2)	(3)	(4)	
i)	Moisture, percent by mass, *Max*	8·0	4	of IS : 4706 (Part II) - 1978*
ii)	Total ash (on dry basis), percent by mass, *Max*	2·0	5	
iii)	Acid insoluble ash (on dry basis), percent by mass, *Max*	0·07	8	
iv)	Starch (on dry basis), percent by mass, *Min*	60	9	
v)	Protein (on dry basis), percent by mass, *Min*	6·0	10	
	Crude fibre (on dry basis), percent by mass, *Max*	0·80	12	
vii)	Acidity (as KH_2PO_4), percent by mass, *Max*	1·0	14	

*Methods of test for edible starches and starch products: Part II Chemical methods (*first revision*).

4. PACKING AND MARKING

4.1 Packing — The material shall be packed in clean, sound and dry tin containers or high density polyethylene containers made of such material and in such sizes as agreed between the purchaser and the vendor.

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*Specification for test sieves (*revised*).

†Code for hygienic conditions for food processing units (*first revision*).

4.2 Marking — Each container shall be suitably marked so as to give the following information:

a) Name of the material;

b) Name of the manufacturer;

c) Batch or code number;

d) Net mass; and

e) Other labelling requirements according to the provisions of the Standards of Weights and Measures (Packaged Commodities) Rules, 1977.

4.2.1 Each container may also be marked with the ISI Certification Mark.

NOTE — The use of ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 The method of drawing the representative samples of material and criteria for conformity shall be as prescribed in IS : 4662-1977*.

6. TESTS

6.1 Tests shall be carried out as prescribed under **3.2** and col 4 of Table 1.

6.2 Quality of Reagents — Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (*see* IS : 1070-1977†) shall be used where the use of water as a reagent is intended.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the results of analysis.

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*Methods for sampling of starches and starch products (*first revision*).

†Specification for water for general laboratory use (*second revision*).

APPENDIX A

(*Clause* 0.2)

SUGGESTED METHOD FOR MANUFACTURE OF EDIBLE SPRAY DRIED POTATO FLOUR

A-1. PROCEDURE

A-1.1 Selection — Sound, clean and healthy potatoes are selected for manufacturing potato flour. White coloured potatoes are preferred in order to get white colour of the final product.

A-1.2 Peeling — Peeling of the potatoes is done with the help of automatic peelers after properly washing them in sufficient clean water. Due care should be taken to avoid deep peeling of potatoes which causes direct loss.

A-1.3 Pre-cooking — Peeled potatoes are pre-cooked in the open pan at atmospheric pressure or in the retorts under pressure.

A-1.4 Slurry Formation — The pre-cooked potatoes are passed through pulpers with addition of hot water to get a potato slurry having very low microbial count. The potato slurry is then taken in the tank which is fitted with low speed agitator. From this tank, the slurry is fed into the automizer of the spray drying chamber.

A-1.5 Final Drying — The potato slurry is finally dried in the drying chamber of spray dryer with the help of hot air at 200°C inlet temperature and 90°C outlet temperature.

INDIAN STANDARDS ON EDIBLE STARCHES AND STARCH PRODUCTS

IS:

873-1974	Liquid glucose (*first revision*)
874-1975	Dextrose monohydrate (*second revision*)
899-1971	Tapioca sago (*SABOODANA*) (*first revision*)
1005-1976	Maize starch (corn flour), edible (*second revision*)
1006-1967	Arrowroot starch (*first revision*)
1007-1971	Custard powder (*first revision*)
1317-1969	Edible tapioca chips (*first revision*)
1318-1969	Edible tapioca flour (*first revision*)
1319-1969	Edible tapioca starch (*first revision*)
3155-1969	*MAKHANNA* products
4287-1976	Glossary of terms relating to starch (*first revision*)
4662-1977	Methods for sampling of starch (*first revision*)
4706 (Part I)-1978	Methods of test for edible starches and starch products: Part I Physical methods (*first revision*)
4706 (Part II)-1978	Methods of test for edible starches and starch products: Part II Chemical methods (*first revision*)
9130-1979	Edible spray dried potato flour